

the River Restoration Centre

River

SKERNE

restored 1995/98



Working to restore & enhance our rivers



Joining the River Restoration Project in partnership were Northumbrian Water, the Environment Agency, Darlington Borough Council with Countryside Commission and English Nature.



COUNTRYSIDE
COMMISSION



The Skerne project is one of three linked under the umbrella of the EU - LIFE programme, and is supported by the Heritage Lottery Fund.



Supported by the
Heritage Lottery Fund

Additional support was received from the Rivers Agency (Northern Ireland), Durham Wildlife Trust and Rexam UK.

The quality of many rivers and their surrounding environment has been steadily degraded over recent decades. Straightened, deepened and sometimes embanked; their valleys and floodplains intensively farmed or developed; much of their natural beauty and value to people and wildlife has been lost.

River restoration aims to reverse this process using environmentally sensitive management techniques, to create sustainable solutions which will give back much of what has been taken away.

The EU-LIFE Demonstration Project

The River Skerne project is complimented by two others that demonstrate different aspects of river restoration as explained below. Further brochures are available from RRC.

All three sites were promoted as part of the EU-LIFE demonstration project entitled *River Restoration: Benefits for Integrated Catchment Management*.

The LIFE project was led by the Danish county of South Jutland who undertook the restoration of the river Brede. RRC was responsible for the restoration of the two UK sites on behalf of the UK participants.

The monitoring programme is co-ordinated across all three sites to ensure that features that are unique to one site are studied in depth and the performance of features that are common can be compared across all three.

Other EU-LIFE project sites

RIVER COLE – UK

The River Cole at Coleshill flows through National Trust owned farmland, NE of Swindon on the Oxfordshire/Wiltshire border.

Here the Cole had been realigned, straightened, and enlarged over centuries. Originally straightened for milling, the river had more recently been deepened and enlarged to safeguard agricultural production from flooding. This type of historical management is typical of many other rural rivers.

Upstream of the mill the river was restored to its original course (retaining a small flow in the mill leat) to join the old surviving 'mill by-pass' channel. This new smaller channel encourages beneficial flood storage on the fields and allows fish to pass the mill weir. Downstream the river was reduced in size and re-meandered across the old course to a more natural profile, retaining existing mature riverside trees. The restoration of bed level, water level and flood regime was achieved by cutting the new meandering river at a much higher level, similar to that of the 1960's prior to the last major deepening scheme.

Along the 2km length, bankside and in-channel vegetation has been left to re-colonise naturally and continues to be monitored as part of the comprehensive monitoring programme.



Before



After

RIVER BREDE – DENMARK

The River Brede flows through farmland in the low lying county of South Jutland.

It differs from the Cole in that the floodplain soils are much lighter sands and peats. Historic meanders had been removed from the river to create a totally straight course to enable intensive grassland farming.

Weirs in the river, as well as the straightening, virtually eliminated a once valuable sea trout fishery.

A 5km reach was re-meandered under the EU-LIFE project, but over 20km of the Brede have now been restored as part of a nationwide strategy to improve the environmental management of river valleys.

The scale of re-meandering is much greater than in the UK; the Brede once again sweeps from side to side along the 500m wide floodplain and seasonal flooding has been restored to the whole valley.

One unique aspect of this project is the exchange of land between farmers.

The natural regeneration of the meandering river has been rapid and the sea trout are taking advantage of this.



Before



After

the River Restoration Centre

The Organisation

On April 1st 1998 the River Restoration Centre (RRC) became the successor body to the River Restoration Project (RRP). RRC is an independent non-profit making organisation with the key objective of promoting river restoration as an integral part of sustainable water management in the UK. It draws upon the professional expertise of ecologists, engineers, biologists, geomorphologists and planners and is advised by representatives of major UK organisations that share responsibilities for land and water management.

Achievements of RRP (1994-1998)

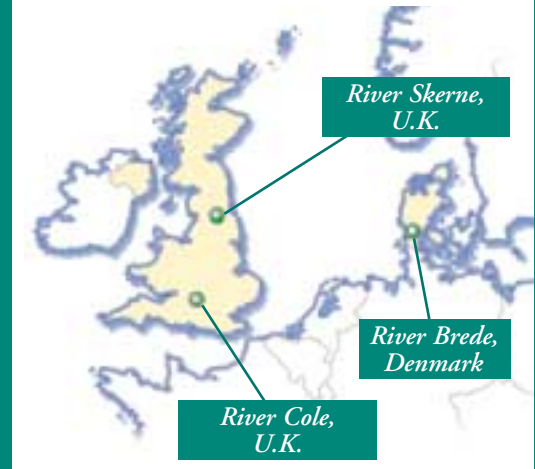
The RRP was launched by the Prime Minister with the principal aim of serving as a UK-wide catalyst, through which knowledge could be gained and expertise shared, to the benefit of all those who undertake river restoration.

Four targets were set, all of which have been achieved:

- Establish state of the art demonstration projects,
- Establish partnerships for restoration,
- Establish a river restoration network,
- Provide publications and training.

RRP publications include details on monitoring, public perception, practical techniques, and institutional involvement. A film of the project has been produced and RRP has actively participated in workshops, conferences and seminars.

Location of the EU-LIFE Demonstration sites.



The Future –The River Restoration Centre

Key institutions for land and water management have acclaimed the Cole and Skerne projects as highly successful. Past and future investments in this area are considered best served by a UK focal point, dedicated to helping others in their efforts to improve the river environment. The evolution to become a centre for the exchange of information and expertise reflects the priority to learn from what has gone before, so that future works are undertaken more efficiently and pioneering achievements are communicated to benefit others. To this end RRP has developed into the River Restoration Centre.

RRC is dedicated to highlighting the economic, environmental and social benefits of restored rivers, and will serve others by:

- Maintaining comprehensive information about the progress of river restoration and ensuring the structural dissemination of this to practitioners across the UK,
- Helping others through a network of professional advisors with up to date experience,
- Supporting the development of projects selected to further advance knowledge and understanding of restoration techniques appropriate to differing river types and situations.

To become part of the process of 'turning vision into reality' contact RRC.



*The Skerne
prior to restoration*

CONTACTS

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THE RIVER SKERNE

About the River Skerne

The River Skerne at Haughton-le-Skerne, Darlington, flows through an urban parkland surrounded by housing and industry. Over the past 200 years it has undergone straightening and deepening for flood control and drainage. Much of the floodplain has been raised high above the river by industrial waste tipping. Housing development, gas and sewer pipes and electricity cables, further limiting restoration opportunities. This situation is typical of many rivers flowing through towns and cities in the UK, where the ecology and the visual and recreational appeal of rivers has suffered.

The Objectives

- Restoration of 2km of the river in terms of physical features, flood management, habitat diversity, water quality, landscape and access for the community,
- Application of innovative restoration techniques and best management practice within an urban environment,
- The furthering of knowledge and understanding of river restoration by comprehensive monitoring and by practical demonstration of the results to the local community and wider audience.

River Skerne Restoration

Old maps show that the River Skerne once meandered freely within a wide floodplain.

The physical restoration of river features was achieved, where constraints allowed, by:

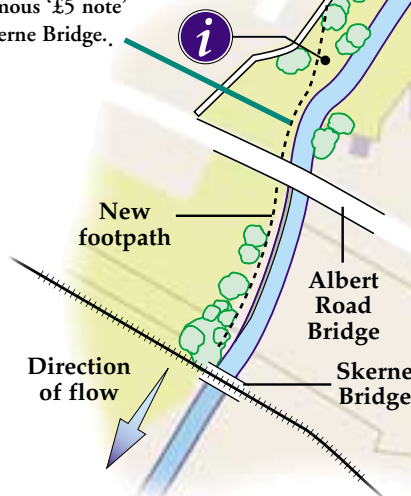
- Re-meandering the course where space permitted; cutting a new channel and filling the old,
- Re-profiling the riverbank to more natural shapes,
- Lowering floodplain land to store water in times of high flows.



Footpaths and Access

A new easily accessible footpath, skirting the new meanders, now links the old bridge and newly constructed 'Locomotion' footbridge.

Another new riverside path under Albert Road Bridge gives access to the famous '£5 note' Skerne Bridge.



To restore the ecological value of the river, the project;

- Improved the sewer systems and riverside outfalls,
- Created shallow wetlands on the lowered floodplain,
- Introduced different river features to encourage natural processes and create new habitats.

Local community involvement and understanding was essential. The project needed to make the river accessible, attractive and interesting to the people of Darlington, by:

- Community input in design, planning, planting and education,
- Providing new footpaths, footbridge and access to the rivers edge,
- Landscaping to create a pleasant 'greener' environment.

Sewers and Outfalls

Many ugly bankside surface water drains have been replaced by underground collection chambers reducing the risk of pollution.



The appearance of the riverbank has improved as screened water is now fed into the backwaters and river below water level.

Where an old sewer pipe crossed the river a 'fish friendly' pass has been built.



IN DARLINGTON



Backwaters and Wetlands

Backwaters are important for wildlife. In high flows they provide shelter for fish, especially the young. Wetland areas attract other species of plants and animals, including young dragonflies and damselflies which feed, as adults, over the wildflower grassland.

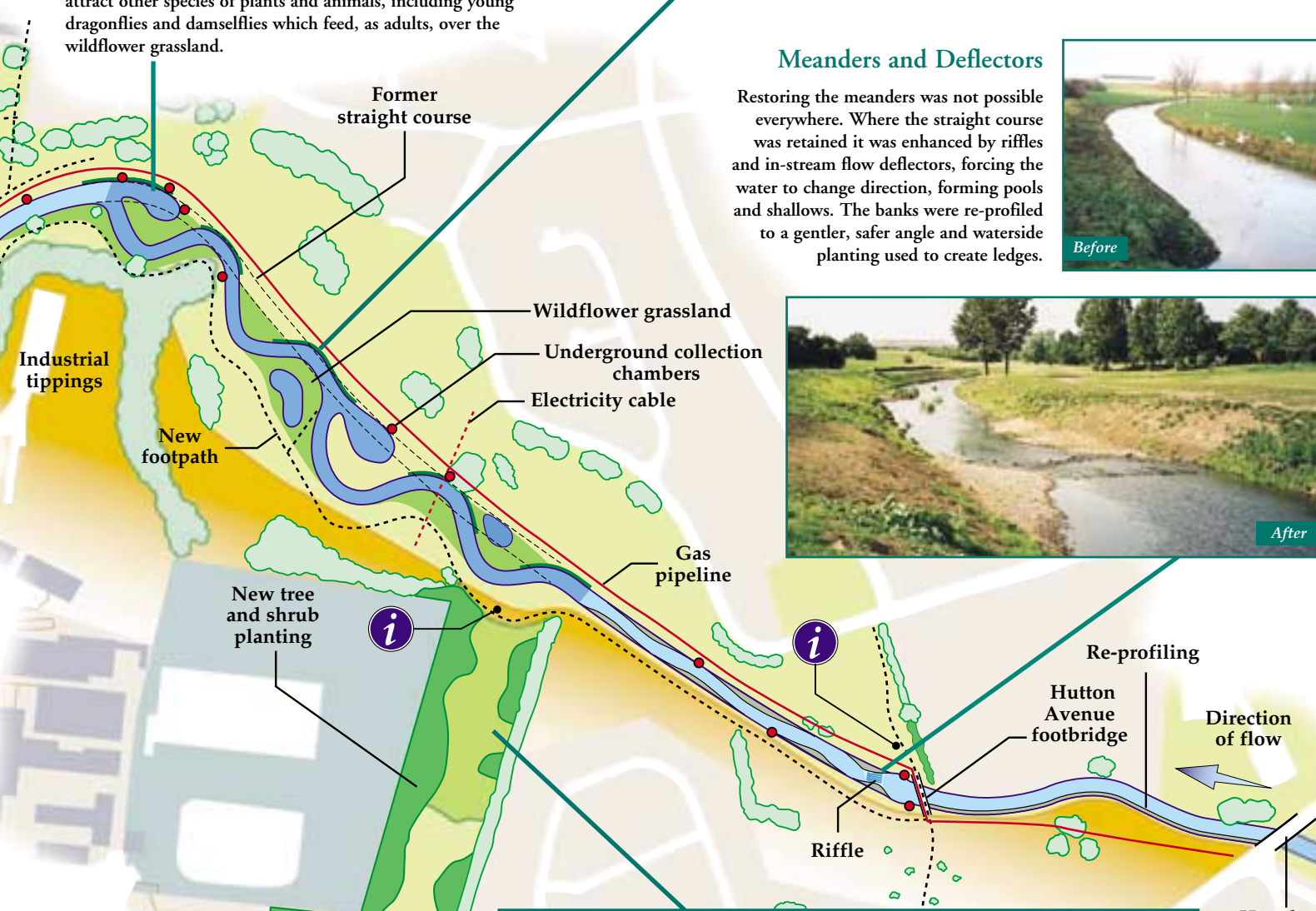


Revetments

Where re-meandering was possible it was necessary to protect the north bank from erosion and potential exposure of the gas main. Natural techniques were used; ready-planted coconut fibre rolls and willow trees use the ability of living plant roots to bind the earth bank and quickly form a protective natural cover.

Meanders and Deflectors

Restoring the meanders was not possible everywhere. Where the straight course was retained it was enhanced by riffles and in-stream flow deflectors, forcing the water to change direction, forming pools and shallows. The banks were re-profiled to a gentler, safer angle and waterside planting used to create ledges.



Landscaping and Planting

To allow the river to overspill its meandering banks but still protect surrounding houses, the floodplain was lowered by moving 20,000 m³ of soil. This soil was used to reshape the bare valley sides at Rockwell and screen the view of local industry at the Keepsafe. With help from local schools each area was planted with 20,000 trees and shrubs, as well as bulbs and flowers.



MONITORING AND BENEFITS

The Monitoring Programme

A full background study was carried out to make certain that the river and the surrounding area was thoroughly understood before any plans were drawn. This information will also allow comparisons to be made with the changes resulting from the works.

A comprehensive monitoring programme has been running since the start of the project and will continue for at least four more years.

Early Results

- **Flooding:** Shallow flooding of the planted grassland removes silts from the river. Waders feed in the pools.
- **Habitat:** The riffle and deflectors have created pools and shoals resembling a more natural River Skerne.
- **Wildlife:** Previously absent or uncommon, swans, fish, dragonflies and the protected water vole have been recorded.
- **Water quality:** The quality of surface water entering the river has been improved, whilst visually, the removal of outfalls has had an immediate effect.
- **Planting:** Trees, shrubs, plants and bulbs enhance the informal park. Riverside flowers add colour and life.
- **Landscape and recreation:** Visually much more attractive. New paths and a new footbridge complete the theme of 'bringing the countryside into town'.
- **Education:** Universities/colleges have shown great interest and local schools have helped with planting and monitoring.



On the riffle at Hutton Avenue footbridge



View of new footpath and meanders

Wider Benefits

The knowledge and experience gained means that others can be more confident about organising, funding, designing and implementing future projects.

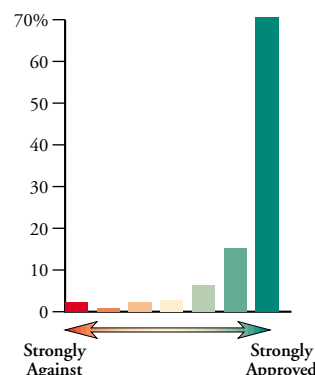
In addition, the project improves understanding about the contribution that river restoration can make towards:

- Better management of floods, droughts and water quality,
- Supporting the realisation of the UK Bio-Diversity Action Plan and Local Agenda 21 Plan targets,
- Increasing public awareness of the impact of past management and promoting positive action to restore the natural balance.

Community Benefits

In an independent survey, local residents were questioned about how they perceived the project. The figures below show the ratio of positive to negative responses:

Perception	+ve/-ve
Achievement of the Projects' objectives	9:1
Increase in wildlife and habitat	23:1
Improved landscape quality	16:1
Improved recreation	8:1
Reduced risk of flooding	10:1
Good value for money	4:1



Overall 82% of the local community approved of the River Skerne Project just one year after the majority of work had been completed. It is expected that this figure will rise now the work is complete and as the river matures.